

Current Issues

IN ECONOMICS AND FINANCE

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The Changing Nature of the U.S. Balance of Payments

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Earnings on cross-border investments figure only marginally in net estimates of the U.S. current account, but they represent an increasingly large share of gross flows between the United States and other nations. Because these earnings fluctuate much more sharply than trade flows, they can be expected to create permanently higher current account volatility. Such increased volatility is not necessarily grounds for concern, however; it reflects an international sharing of risk that provides a buffer against domestic economic uncertainty.

International trade flows have long been regarded as the chief driver of the U.S. current account balance. In this view, the gap between U.S. exports and imports effectively determines the nation's balance of payments with the rest of the world, while other components of the current account—earnings streams on foreign assets or cross-border wage payments—play only a very minor role. The paramount importance of trade flows finds support in the net figures for the U.S. current account reported in the press. Thus, the 2007 current account deficit, measured as 5.3 percent of GDP, is broken out into the trade deficit (5.1 percent of GDP), a deficit in cross-border labor income and transfer payments (0.8 percent), and a surplus in net investment earnings—the dividends and interest earned by U.S. investors on their assets abroad minus the dividends and interest paid to foreign investors on their holdings in the United States (0.6 percent). This accounting gives the impression that the trade deficit eclipses all other factors in explaining the variation in the current account balance.

In this edition of *Current Issues*, we argue that such representations of the current account mask a growing role for the earnings on international assets and liabilities. While these earnings are secondary in the net current account numbers given above, they now figure much more prominently in the

gross flows to and from the United States¹—a development attributable directly to the financial globalization of the past three decades.

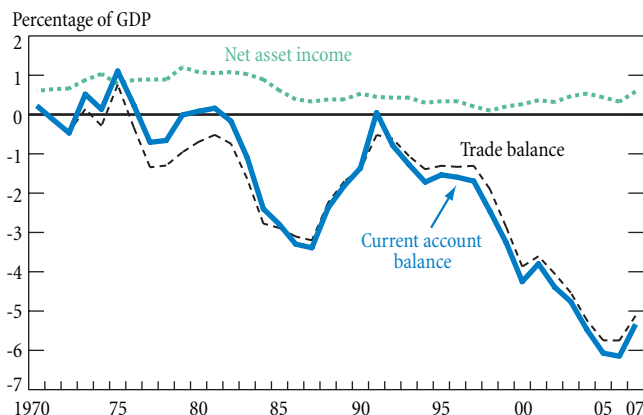
Our analysis considers the implications of this development for the future behavior of the current account balance. Because earnings streams fluctuate more sharply than trade flows, they can be expected to heighten the volatility of the current account in coming years. Nevertheless, a more volatile current account is not necessarily an adverse development: it reflects an international sharing of risk through which the U.S. economy is partly protected from the uncertainties of its business cycle.

Explaining the Changes in the U.S. Current Account

Over the past four decades, the current account balance has moved in close step with the trade balance, following it into deeper deficit (Chart 1). In striking contrast, net asset income has shown a steady surplus, apparently contributing little to the current account's movements.

¹ Our analysis focuses on trade and earnings flows. Current transfers (including U.S. government grants, U.S. government pensions, and various private remittances and transfers) and cross-border labor income are of less interest for this study because these flows, while sizable, have remained fairly steady.

Chart 1
The Current Account Balance and Its Components



Source: U.S. Bureau of Economic Analysis.

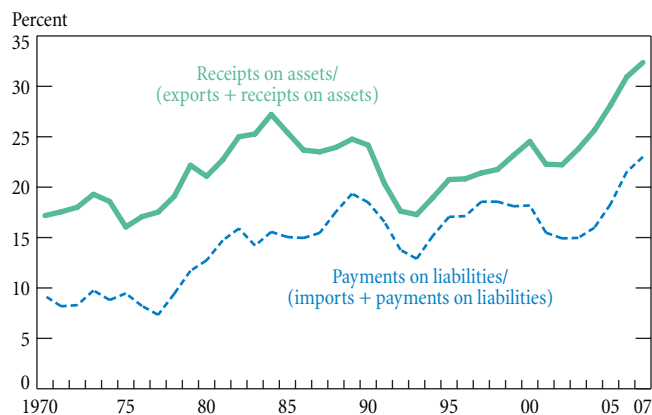
A very different picture emerges, however, if we look beyond these net values to the gross earnings flows to and from the United States. The nation's gross income from the rest of the world consists of the value of exports plus the value of dividends and interest earned by U.S. investors on their assets abroad. Earnings on foreign assets (or "receipts on assets") represent a growing share of U.S. gross income, roughly doubling from 17 percent in 1970 to 32 percent in 2007 (Chart 2). A similar pattern is observed in gross payments to the rest of the world, which consist of the value of U.S. imports plus the value of dividends and interest earned by foreign investors on their U.S. assets. Earnings by foreign investors in the United States—identified from the U.S. point of view as "payments on liabilities" in Chart 2—also claim an increasing share of U.S. gross payments, rising from 9 percent in 1970 to 23 percent in 2007.

Effects of Financial Integration and Changing Yields

The growing share of asset income in gross flows to and from the United States is a direct consequence of financial globalization. With the increased integration of world financial markets, the value of international assets and liabilities has surged;² the rise in value, which began in the late 1970s, has been especially marked since the mid-1990s. In the case of the United States, the value of assets held by U.S. investors abroad tripled from 32 percent of GDP in 1982 to 106 percent in 2006. Over the same period, the value of U.S. liabilities to foreign investors increased sixfold from 22 percent to 123 percent of GDP.³ These sharp increases in the value of cross-border financial holdings would logically entail equivalent increases in the dividend and interest earnings streams from these holdings. Moreover, because financial globalization has proceeded at an even faster pace than the

² The surge is the subject of a growing academic literature. See, for example, Gourinchas and Rey (2007), Higgins, Klitgaard, and Tille (2007), and Lane and Milesi-Ferretti (2007).

Chart 2
Earnings on Assets as a Share of Gross Flows



Source: U.S. Bureau of Economic Analysis.

rise in international trade,⁴ earnings streams should have increased not only in absolute value but also relative to trade flows. It follows, then, that these streams would carry greater weight in the balance of payments.

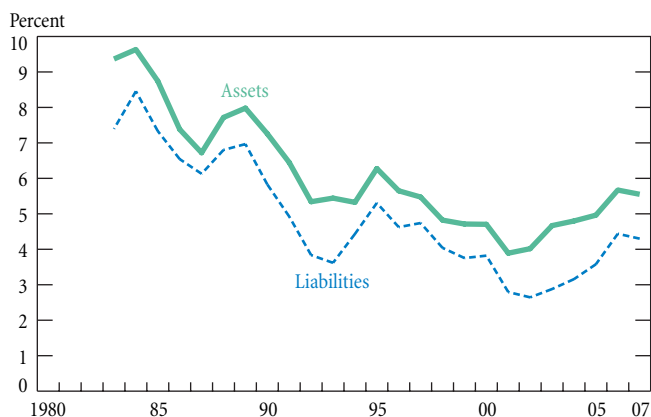
While the evidence presented in Chart 2 suggests that this is in fact the case, the role of international earnings streams has not expanded as steadily as one might expect. A closer look at the chart shows three distinct phases: The first phase, from 1970 until the early 1980s, saw an increase in both the share of gross income attributable to U.S. earnings on foreign assets and the share of gross payments attributable to foreign earnings on U.S. assets. The second phase, lasting roughly twenty years, showed no clear trend in the growth of these shares. Finally, the third phase, which began in the early 2000s, saw both shares rise sharply.

This variable pace reflects the offsetting trends of increased holdings and lower yields on assets and liabilities. While the rise in holdings brought about by financial globalization has enlarged the share of earnings in gross flows, this trend has been counterbalanced by the reduction in nominal yields since the early 1980s. Between 1983 and 2007, the yield on U.S. assets abroad fell from 9.4 percent to 5.5 percent, and the yield on U.S. liabilities dropped from 7.4 percent to 4.3 percent (Chart 3). This trend simply reflects the reduction in inflation in industrialized countries since the early 1980s.

³ Since 1982, the Bureau of Economic Analysis has calculated the value of U.S. international assets and liabilities using the "market" value of foreign direct investment (with the value of foreign affiliates of multinational firms estimated using stock market prices). An alternative measure using the "current cost" value (relying on estimates of the replacement values of the assets in affiliates) has been available since 1976; it provides a similar picture of the growth of U.S. international assets and liabilities. See Nguyen (2007).

⁴ Between 1982 and 2006, the value of gross assets and liabilities relative to GDP grew at roughly twice the rate of exports and imports relative to GDP.

Chart 3
Yields on International Assets and Liabilities



Source: U.S. Bureau of Economic Analysis.

To shed light on the uneven pace of growth in asset income streams over the past three decades, we separate the impact of financial globalization—measured by the holdings of international assets and liabilities—from the impact of changes in yields. Since the late 1970s, globalization has consistently boosted the size of total earnings streams. Between 1977 and 1983, this effect was magnified by rising nominal yields, a development that explains the clear increases in the share of asset earnings in gross income shown in Chart 2.⁵ A similar pattern is observed beginning in 2002, with globalization and rising yields both leading to larger earnings streams. By contrast, the drop in yields between 1983 and 2002 offset the influence of globalization, accounting for the stable share of earnings over that period (Table 1). Our method of calculating these effects is outlined in Box 1.

While this evidence suggests that the value of earnings on international assets has not risen uniformly over our sample period, the overall pattern we described earlier still holds: between 1977 and 2007, cross-border earnings streams showed extraordinary growth. Why, then, is the increased role of earnings in gross flows not reflected in net terms?

Degrees of Symmetry: Trade and Earnings Flows

Asset income figures importantly in gross flows but only marginally in net flows because of the two-way nature of trade and earnings flows. In the case of earnings flows, growth in payments to the rest of the world has largely been matched by growth in receipts from the rest of the world. By contrast, the growth in international trade flows has been much less balanced, with imports expanding faster than exports. The greater symmetry of earnings flows, along with the fact that yields on international assets have moved in close parallel with yields on

⁵ The yields after 1983 are based on the market value measure of foreign direct investment in assets and liabilities, while the yields in prior years are of necessity based on the current cost measure. Using the current cost measure for the full 1977-2007 sample period generates similar results.

Table 1
Change in Earnings on Assets
Billions of Dollars, Except As Noted

	Assets			Liabilities		
	1977-83	1983-2002	2002-07	1977-83	1983-2002	2002-07
Total	57.6	188.4	500.9	39.4	191.5	453.0
Due to holdings	49.5	399.4	340.1	28.6	428.9	242.0
Due to yields	8.1	-211.0	160.8	10.8	-237.4	211.0
Change in yield (percent)	1.0	-5.3	1.5	2.0	-4.8	1.7

Sources: U.S. Bureau of Economic Analysis; authors' calculations.

Note: The computations rely on data in which foreign direct investment is measured at market value for 1983-2007 and at current cost for 1977-83. Similar results are obtained when data based on the current cost measure are used for the full 1977-2007 period.

Box 1

Effects of Holdings and Yields on Asset Income

Asset income in a given year t (Inc_t) is the product of holdings at the end of year $t-1$ ($Hold_{t-1}$) and the yield in year t (i_t):

$$Inc_t = Hold_{t-1} \cdot i_t.$$

Based on this formula, the change in asset income between two years, t and s , can be written as

$$Inc_t - Inc_s = \frac{i_t + i_s}{2} (Hold_{t-1} - Hold_{s-1}) + \frac{Hold_{t-1} + Hold_{s-1}}{2} (i_t - i_s),$$

where the first term on the right-hand side of the equation reflects the role of the change in holdings and the second term captures the impact of the change in yields.

Table 2
Gruber-Lloyd Index: The Symmetry of Flows

	1970	1990	2007
Trade flows	0.98	0.93	0.82
Earnings flows	0.64	0.90	0.95

Source: Authors' calculations.

Note: The index ranges from zero to one. A value of zero indicates that gross flows are in one direction only; a value of one indicates that inflows exactly match outflows.

international liabilities (Chart 3), accounts for the limited role of earnings in net terms.

The difference between trade and earnings flows in this regard is captured by a Gruber-Lloyd index, which measures the degree of symmetry in two-way flows. The index, shown in Table 2, ranges from zero when gross flows are in one direction only⁶ to one when inflows and outflows so offset each other that they leave no net flows. As the results reported in the table suggest, earnings

⁶ The measure assumes the same value whether uneven flows lead to a deficit or a surplus. The index is aimed at the symmetry between payments and receipts, not the direction of any imbalance between the two.

streams on international assets have become increasingly symmetric since 1970, with payments on foreign investments in the United States almost equaling receipts from U.S. investments abroad. Trade flows, by contrast, have become increasingly one-sided over the same period.

How Rising Earnings Streams Affect the Current Account

As earnings streams on foreign assets claim a larger share of the nation's gross earnings flows, the current account is becoming more sensitive to fluctuations in international financial yields and interest rates. Earnings streams are much more volatile than trade flows; in the 1990-2007 period, the standard deviations in annual growth rates for both receipts on assets and payments on liabilities were three times larger than those for exports and imports (Table 3). This finding reflects the fact that financial variables, such as interest rates, are more volatile than real (inflation-adjusted) variables, such as the real demand for goods and services. In addition, while trade flows have become more stable since 1990, no such change is observed for earnings streams, which have in fact become more volatile.

To be sure, total receipts (export income plus the dividends and interest earned by U.S. investors on their assets abroad) and total payments (payments for imports plus the dividends and interest paid to foreign investors on their U.S. assets) have become more stable in recent years—largely because the reduction in the volatility of trade flows has been substantial enough to offset the increasing weight of earnings streams. Nevertheless, it is doubtful that this pattern can persist going forward. First, a further large reduction in the volatility of trade flows is unlikely in the near future. Second, the expanding share of total receipts and total payments claimed by earnings on assets weakens the impact of a given reduction in trade volatility. Thus, the growing importance of earnings in gross flows implies that the current account will become more volatile.

To get a more precise idea of the increased sensitivity of the current account to movements in yields on assets and liabilities, consider the effect of a 1-percentage-point shift in the yield on total foreign assets held by U.S. investors. If, as we saw earlier, the value of these assets is now 106 percent of GDP, then this shift should result in a movement in net earnings streams of 1.1 percent of GDP. Significantly, the magnitude of this effect has doubled over the last ten years.⁷

Further evidence of the heightened sensitivity of the current account to movements in yields is provided by a recent revision of the balance of payments conducted by the Bureau of Economic Analysis (BEA). On June 15, 2007, the BEA released data on the balance of payments through the first quarter of 2007, as well as revisions to the data going back to 1997. These revisions were completed by the June 29, 2007, release of the U.S. net international investment position (the value of accumulated

Table 3

Volatility of Trade and Earnings Flows

Standard Deviations in Annual Growth Rates, in Percent

	1970-2007	1970-90	1990-2007
Exports	8.3	9.7	5.6
Receipts on assets	13.9	13.7	14.1
Total receipts	9.0	10.0	7.1
Imports	7.9	9.1	5.6
Payments on liabilities	15.8	14.9	16.5
Total payments	8.4	9.0	7.0

Sources: U.S. Bureau of Economic Analysis; authors' calculations.

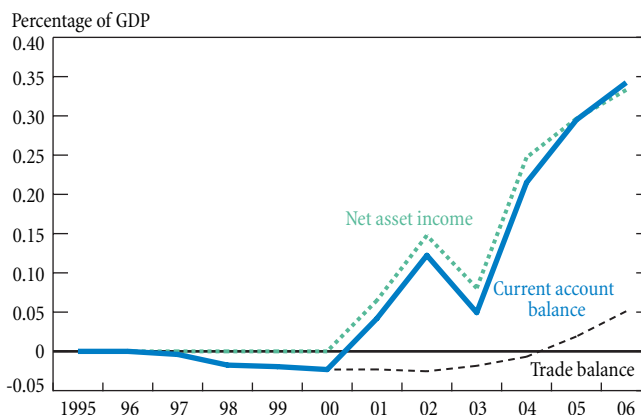
holdings of U.S.-owned assets abroad less foreign-owned assets in the United States) as of end-2006, which included revisions for gross asset holdings going back to 2003. The balance of payments revision incorporated new data for income on foreign direct investments and a new method for computing interest payments on long-term debt.

The revisions to the current account were sizable, with the amended data showing a smaller current account deficit since 2001. The change in the size of the deficit was especially marked for the years 2004-06: the deficit revision reduced it by 0.22 percent to 0.34 percent of GDP (Chart 4). This reduction was driven by an upward revision of net asset income; only minimal revisions were made to the trade balance.

The revision to the value of net asset income was, in turn, driven largely by an upward adjustment in the earnings on U.S. investments abroad (Chart 5, upper left panel). Downward adjustments to foreign investors' earnings on their U.S. assets played some role as well, especially in 2006 (Chart 5, upper right panel). The revision to net asset income can also be split into revisions to yields and revisions to the underlying holdings (Chart 5, bottom panel).⁸ As the chart makes clear, adjustments to yields were the primary source of the change in net asset

Chart 4

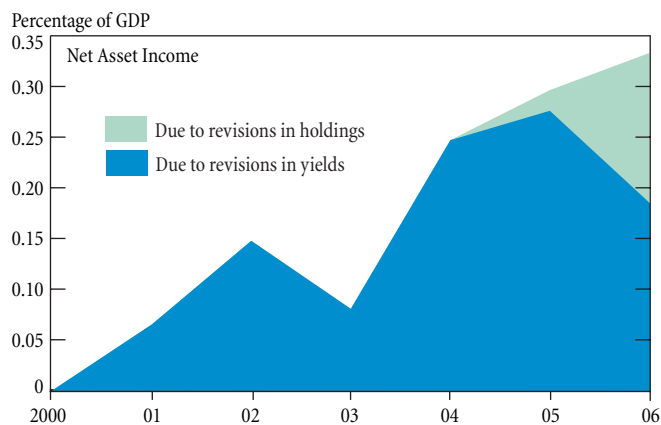
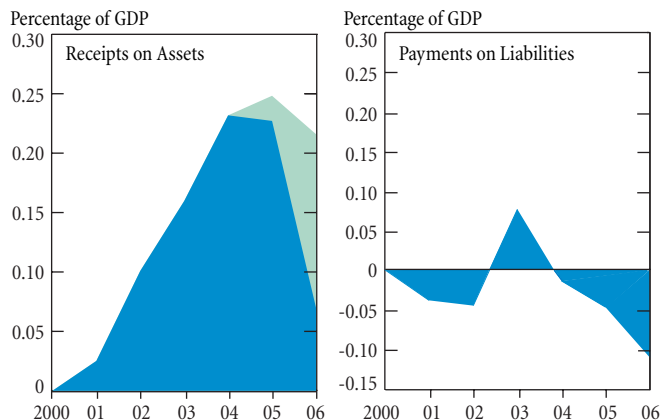
2007 BEA Revisions to the Current Account Balance



Source: U.S. Bureau of Economic Analysis (BEA).

⁷ Higgins, Klitgaard, and Tille (2007) analyze the heightened exposure of U.S. international accounts in more detail.

Chart 5
Decomposition of the 2007 BEA Revision to Asset Income



Sources: U.S. Bureau of Economic Analysis (BEA); authors' calculations.

income since 2000. Revisions in holdings played a sizable role only in 2006, when they accounted for a little less than half of the overall change.

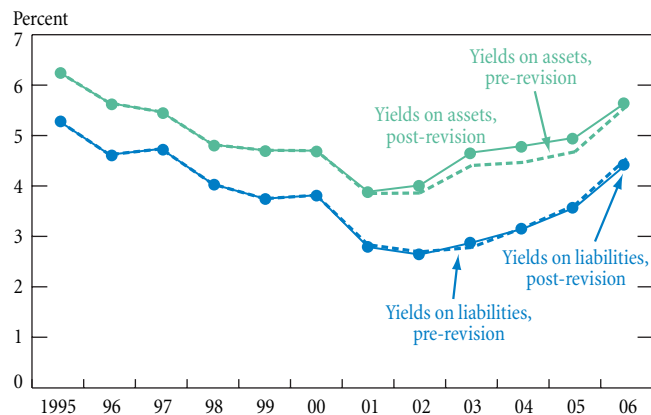
Nevertheless, a closer look at the data (Chart 6) shows that the revision in yields was not particularly large. While the revision led to higher yields on assets in the 2003-05 period, the magnitude of the change was relatively moderate, amounting to 26, 33, and 28 basis points (that is, 6 to 7 percent of the pre-revision yields) in the three consecutive years. We conclude, therefore, that the substantial increase observed in net asset income stems from a *combination* of the adjustment in yields with large underlying holdings.

Asset Income in the Years Ahead: A Scenario Analysis

Can we expect earnings streams to be a growing source of volatility in the U.S. current account in the future? Since a forecast exercise is beyond the scope of this article, we instead seek

⁸ This exercise follows steps similar to those in Box 1, except that we now compare pre- and post-revision earnings streams for a given year, instead of comparing streams across two different years.

Chart 6
Pre- and Post-Revision Yields on U.S. Assets and Liabilities



Source: U.S. Bureau of Economic Analysis.

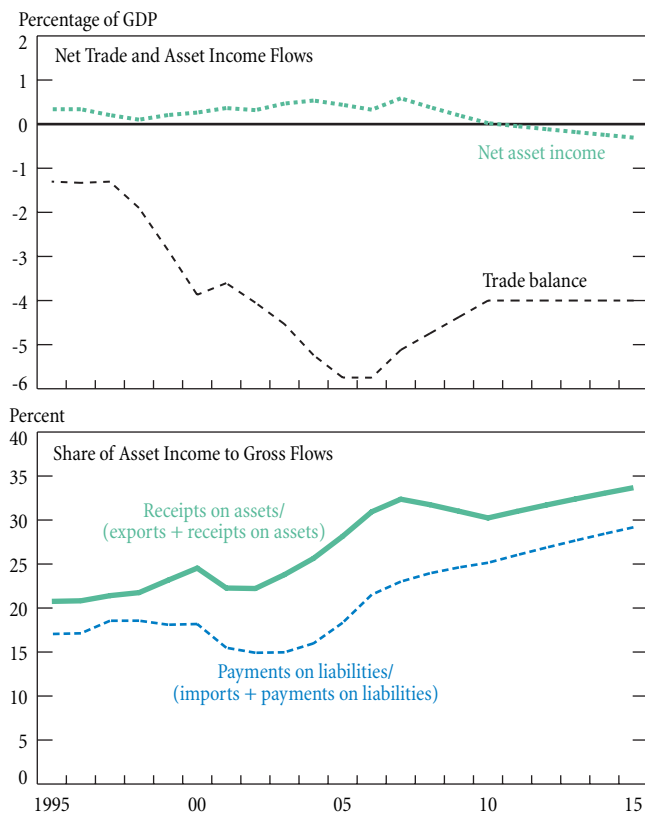
to answer this question through a simple scenario analysis. First, we posit a growth path for the nation's trade and earnings flows that is consistent with existing trends. We assume that, starting in 2007, nominal GDP grows at a rate of 3.5 percent in 2008, 4.5 percent in 2009, and 5 percent thereafter. We set the ratio of exports to GDP to increase gradually from 11.8 percent in 2007 to 14 percent in 2010 and then to remain at that level through 2015. Similarly, the ratio of imports to GDP moves from 16.9 percent to 18 percent in 2010. The yield on liabilities is kept at its 2007 value (4.3 percent), while that on assets drifts from 5.5 percent to 5.3 percent in 2010 and thereafter remains constant. Total payments are set at 50 percent of export flows, in line with the U.S. evidence. Total receipts are set so that net inflows match the current account (net trade flows and net asset income).

In this baseline scenario, the trade deficit stabilizes at 4 percent of GDP, while net asset income drifts into a deficit of 0.34 percent by 2015 (Chart 7, top panel). Earnings on U.S.-held foreign assets as a share of total receipts climbs to 34 percent by 2015, while payments to foreign investors as a share of total payments reaches 29 percent (Chart 7, bottom panel).

Next, we test the sensitivity of these projections to moderate changes in yields by constructing an alternative scenario in which the yield on assets is raised 25 basis points above its level in the baseline scenario and the yield on liabilities is lowered 10 basis points. These adjustments are in line with the BEA's recent revision of the balance of payments. We find that the adjustments, though minor, have a substantial effect on the current account deficit, causing it to narrow by 0.4 percent of GDP in 2008 relative to the baseline scenario. This effect grows in subsequent years because of the additional accumulation of assets and liabilities, reaching 0.6 percent of GDP by 2015.

Our simple scenario analysis suggests that the current account will show a heightened sensitivity to movements in

Chart 7
Scenario Analysis



Sources: U.S. Bureau of Economic Analysis; authors' calculations.

yields going forward. Forecasting the current account should thus become a much more delicate exercise in the future. The task may be particularly difficult during periods of financial disruption, when the yields on various categories of assets move in different directions. For instance, in the troubled fourth quarter of 2007, international transactions showed a substantial increase in U.S. net earnings, reflecting a low return on foreign investment in the United States, while the yields on U.S. holdings of foreign assets fared better.

Putting Current Account Volatility in Perspective

Should we be concerned about the heightened exposure of the current account to movements in financial yields? Certainly, the possibility that movements in foreign financial markets could have a sizable impact on the U.S. current account is disconcerting. However, while exposure to random shocks from abroad is not in itself a favorable development, this is not the full story, for several reasons. First, U.S. investors' greater exposure to foreign shocks is offset by their lower exposure to domestic shocks, which are now partly borne by foreign investors. Second, the degree of current account volatility is not in itself a good measure of economic welfare. The question is not *whether* U.S. international transactions have become more volatile, but

Table 4
Determinants of Income Volatility

	1983-95	1996-2007
Standard deviation (percent)		
Real GDP growth	1.6	1.1
Yield differential	0.4	0.3
Correlation	-0.16	-0.45
Minimizing asset holdings (percentage of GDP) ^a	58	141

Sources: U.S. Bureau of Economic Analysis; authors' calculations.

^aThe ratio of foreign assets to GDP that minimizes the variance of national income, assuming zero net foreign assets.

rather *how* they are linked to overall U.S. income, as measured by GDP.

Specifically, what matters is the extent to which the U.S. business cycle moves in step with the yield differentials between U.S. international assets and liabilities: In other words, does the nation earn more on its assets than it pays on its liabilities when it faces a recession? Since the early 1990s, the U.S. business cycle has experienced a "great moderation" as GDP growth has stabilized (Table 4). By contrast, the volatility of the yield differential between U.S. international assets and liabilities has decreased only modestly. However, while the yield differential is volatile, it is also negatively correlated with U.S. growth. Consequently, the United States earns a higher yield on its assets than it pays on its liabilities precisely when it faces a recession. As Table 4 suggests, this "insurance" benefit from financial globalization has become stronger over the last ten years.

While we cannot determine, in this short article, the quantity of foreign asset holdings that would be optimal, we can shed some light on the question. Suppose that the nation's holdings of foreign assets were fully balanced by its liabilities to foreign investors so that net foreign assets were zero.⁹ We can compute the value of international assets to GDP that would minimize the volatility of national income, which consists of GDP and net asset income (Table 4, row 4). This calculation reveals that sizable holdings of gross international assets would be required—especially in the period since the mid-1990s, when assets would equal a hefty 141 percent of GDP. Box 2 explains the formal method behind this exercise.

If, then, substantial international financial holdings provide a stabilizing benefit, the greater volatility of the current account going forward does not imply lower economic welfare. To the contrary, it is the channel through which business cycle risk is shared across countries.¹⁰

To see this point more clearly, consider the U.S. economy in two alternative settings: In the first, the economy has no inter-

⁹ While the United States has substantial net external debt (17 percent of GDP in 2007), the debt is much smaller than the value of U.S. gross assets and liabilities.

Box 2

A Simple Assessment of Income Volatility

Suppose for simplicity that external assets and liabilities both represent a fraction a_t of GDP at the end of year t . Income in year $t+1$ is the sum of GDP and net earnings on external assets and liabilities:

$$INC_{t+1} = Y_t(1 + g_{t+1} + a_t(i_{t+1}^A - i_{t+1}^L)),$$

where Y_t is GDP, g_{t+1} is the growth rate of GDP, and i_{t+1}^A and i_{t+1}^L are the yields on assets and liabilities, respectively. The variance of income is then

$$\text{Var}\left(\frac{INC_{t+1}}{Y_t}\right) = \text{Var}(g_{t+1}) + (a_t)^2 \text{Var}(i_{t+1}^A - i_{t+1}^L) + 2a_t \text{Cov}(g_{t+1}, (i_{t+1}^A - i_{t+1}^L)).$$

When GDP growth and the yield differential are negatively correlated, this is minimized by setting

$$a_t = -\frac{\text{Cov}(g_{t+1}, (i_{t+1}^A - i_{t+1}^L))}{\text{Var}(i_{t+1}^A - i_{t+1}^L)}.$$

national linkages, and the population bears the full cost of its business cycle. This means that in downturns, when workers are in greater danger of losing their jobs and the yields on their savings are lower than historical norms, they have few means of hedging those risks. In an alternative setting, one that roughly matches the current situation, the United States has sizable international assets and liabilities. Although the current account is clearly more volatile in this second case, the international linkages provide insurance against business cycle swings. During downturns, the yield on foreign-owned assets in the United States declines, so that the U.S. faces low payments to foreign investors when its income is low. In addition, workers who hold some of their savings in foreign assets find that the

¹⁰ An additional benefit of financial globalization emerges when the yield on foreign assets is on average larger than the yield on domestic liabilities. As Higgins, Klitgaard, and Tille (2007) and Gourinchas and Rey (2007) have observed, this is the case for the United States. However, this average yield gap should be interpreted with caution as the data on yields are problematic, as shown by Curcuru, Dvorak, and Warnock (forthcoming).

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Current Issues in Economics and Finance is published by the Research and Statistics Group of the Federal Reserve Bank of New York. Leonardo Bartolini and Charles Steindel are the editors.

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returns on those assets tend to be high precisely when their other sources of income are low. Thus, the cross-border linkages distribute risk across countries and provide a buffer against economic uncertainty.

Conclusion

Our study suggests that the small role of asset income in the net current account obscures its growing relevance for gross flows to and from the United States. Since cross-border earnings streams are more volatile than trade flows, the increased share of these earnings in gross flows suggests the likelihood of a permanently heightened volatility in the current account. As a result, accurate assessment of the international transmission of shocks, especially in the financial sphere, is becoming a more challenging exercise as even small mistakes in estimating the various yields can lead to substantial errors in calculating the current account.

Despite the heightened complexity in assessing U.S. international transactions, we do not believe that a more volatile current account should be viewed with concern. Instead, it represents the very channel through which international risk sharing operates, and its volatility is likely to be associated with higher economic welfare.

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